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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/502,055	07/30/2004	Takunori Taira	256740US2PCT	2509
22850	7590	10/22/2007		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER NGUYEN, TUAN N	
			ART UNIT 2828	PAPER NUMBER
			NOTIFICATION DATE 10/22/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

TH

**Office Action Summary**

Application No.

10/502,055

Applicant(s)

TAIRA ET AL.

Examiner

Tuan N. Nguyen

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --****Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 April 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 13-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 13-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Amendment*

1. In respond to applicant's amendment filed 04/09/2007, claims 1-12 have been canceled, and new claims 13-16 have been added.
2. Reference AA -US 5851284 has been considered and included with this office action.
3. Applicant's arguments with respect to claims 4-12 have been considered but are moot in view of new ground(s) of rejection.

### *Claim Rejections - 35 USC § 112*

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 13-16 are rejected under 35 U.S.C 112, second paragraph, as being indefinite, vague, and confusing for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, **for example**.

It is not clear whether the “ ... the laser being operable to cause a beam of radius  $r_a$  to propagate through the rod, where  $r_a < r_o$  ”, does it means the beam pumping into the rod is less then the rod, or the beam out put from the rod is less then the rod, especially when  $r_a = r_o/4$ . There was no figure to show such structure and/or relationship. In addition, it is not clear to the examiner how/what equi-axis crystal equivalent to – is it a cylindrical rod with equal radius at all

point, or a parallelogram rod meet the same definition. There is insufficient structural relationship between the elements, which render the claims vague and indefinite.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or non-obviousness.

7. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable Rice K.D. et al. (Journal of the Optical Society of America: p 7587-766) in view of Ichiro SHOJI, et al., "(110) Cut no YAG Kessho ni yoru Netsufuku Kussetsu Yuki Depolarization no Teigen", March, 2002.

With respect to claim 13, the claim requires a solid-state laser comprising: a (110)-cut crystal rod belonging to an equi-axis crystal system, the rod having radius  $r_o$ , the laser being operable to cause a beam of  $r_a$  to propagate through the rod, wherein  $r_a < r_o$ . Rice et al. shows

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and discloses a solid-state laser comprising: a (100)-cut crystal rod belonging to an equi-axis crystal system (*Fig 1, 4: equi-axis [100] cut crystal rod, with rod radius*), the rod having radius  $r_o$ , the laser being operable to cause a beam of  $r_a$  to propagate through the rod, wherein  $r_a < r_o$  (*Fig 13: where the laser  $P_{in}$  being operable to cause a beam of  $r_a$  to propagate through the rod, wherein  $r_a < r_o$* ), without discreetly disclose the (110) cut. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or where the remaining elements perform the same function as before involves only routine skill in the art; in this case as discloses in the Applicant specification section [0062] “the thermal birefringence effect may be significantly reduced by using a sample of (100) or (110) cut”. In addition, Ichiro SHOJI, et al., discloses the cut of (110) YAG crystal rod. It would have been obvious to one of ordinary skill in the art to provide Rice K.D. et al. the (110) cut as suggested by Ichiro SHOJI, et al., to reduce the thermal infringement effect as suggested in Rice K.D et al and Ichiro SHOJI, et al.

With respect to claim 14, wherein  $r_a = r_o/4$  (*page 763, equation 18, B7*).

With respect to claims 15, 16 Rice et al. discloses wherein the crystal rod comprises a composite material in which doped YAG is surrounded by undoped YAG (Title / page 758: col 1, p760: col 1 -YAG: Nd laser doped YAG surrounded by undoped YAG).

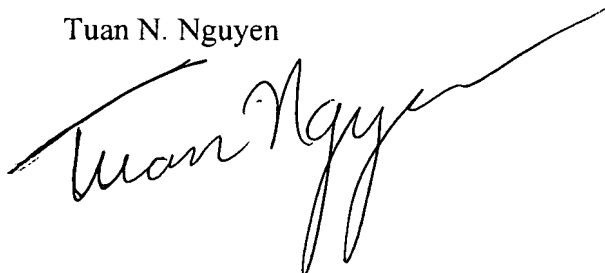
### ***Communication Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan N Nguyen whose telephone number is (571) 272-1948. The examiner can normally be reached on M-F: 7:30 - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harvey Minsun can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tuan N. Nguyen

A handwritten signature in black ink, appearing to read 'Tuan Nguyen', with a long, sweeping horizontal line extending to the right.